

LSI DOCKET NO. 03-1091

## **ABSTRACT OF THE DISCLOSURE**

### **HIGH PERFORMANCE VOLTAGE CONTROL DIFFUSION RESISTOR**

5       The present invention provides a diffusion resistor that is formed in the substrate. A diffusion region is formed within the substrate that contains a first and second contact region. These contact regions extend downward from the surface of the substrate. A third contact is located within the diffusion region between the first and second contacts. This contact also extends downward from the surface of the substrate. These contacts are connected to metal  
10 layers. The first and second contacts form the two ends of the diffusion resistor. The third contact forms a Schottky diode such that application of a voltage to this contact forms a depletion region within the diffusion region. The depletion region changes in size depending on the voltage applied to the third contact to change the resistance of the depletion resistor.